



To: United States Department of Commerce
Patent and Trademark Office

bd. of Appeal
17
8/9/01

Attn: ~~Lee~~ Barrett, Lance Leonard Bary and Stuart Levy, Administrative Patent Judges. *Dm*
From: David Muresan. Address: 18204 30th Ave NE Seattle WA 98155, Ph(206)367 0818
Ref. to: Your Letter Paper No. 16 Date Jul-16-2001, serial no: 08/653,425, filling date: 05/24/96. Name " **Computer Mouse.**", Appeal No. 1998-3357.

Today: Jul-21-2001.

RECEIVED

As a result of your letter as "**Decision of Appeal**", You affirm the ^{AUG - 6 2001} examiner decision to deny a patent based on "Toyoda's Pen mouse".

BOARD OF PATENT APPEALS
AND INTERFERENCES

Please reexamine the Appeal or direct this material to the proper authority to do it.

Reasons: My mouse with two contacts inside of the mouse and the table contact as the third, is different than Toyoda's Pen with three contact inside of the mouse (20x, 20y and wheel 52) and the table contact as the fourth contact. My mouse has the case sliding on the table. The wheel, as the third contact in prior art must have an adjustable position, made with a spring. (otherwise it may not work properly), and in Toyoda's Pen the third contact, the wheel 52 has a fixed position, otherwise if the pen is pressed too much on the table, the ball can enter into case and may even touch the case, or the case may touch the table. The magnet use in my mouse cannot replace the Toyoda's wheel 52 because it require the case to slide on the table. In my mouse the table contact and the x and y contacts will create a triangle to support the ball. In Toyoda's pen the contact 20x, 20y and the wheel 52 will create the necessary triangle to support the ball.

My invention has another advantage, which could not be found in any other mice, that is: possibility to place the contacts x and y in the middle plane of the ball, and so the friction is minimum. In this case the magnet is placed bellow the middle plane, to create a force with two component, one horizontal in the middle plane pressing the baal against the contacts x and y, and one vertical pressing the ball against the table.

Any errors I did, or not clear explanation may be changed. I will change the text of Claim as suggested by patent office because the idea of this invention will not by altered as is clear from the very first specification and drawings.

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Sincerely

David Muresan

various data such as of figures, letters, numerals, and other symbols into the computer accurately as desired.

A pen-type computer input device according to a ninth embodiment of the present invention will be described below with reference to FIGS. 17A, 17B, and 18.

As shown in FIGS. 17A and 17B, a magnet 49 is disposed in the support 7 inwardly of the ball 8. The ball 8 is magnetically attracted into contact with the conversion output shafts 20X, 20Y under magnetic forces from the magnet 49. When the ball 8 rotates, the rotation is transmitted to the conversion output shafts 20X, 20Y, which are then rotated. The ball 8 may comprise a core 50 in the form of a magnetic body such as a steel ball, and an elastic surface layer 51 of rubber or resin covering the core 50, as shown in FIG. 18, or may be made of a mixture of magnetic particles and rubber or resin. Therefore, the ball 8 is reliably held in contact with the conversion output shafts 20X, 20Y under magnetic forces from the magnet 49. The ball 8 is rotatably supported by a bearing 52, rather than holding ball. The other details of the pen-type computer input device shown in FIGS. 17A and 17B are identical to those of the pen-type computer input device according to the third embodiment shown in FIGS. 7A and 7B.

Because the ball 8 is magnetically attracted to the conversion output shafts 20X, 20Y, the rotation of the ball 8 can accurately be transmitted to the conversion output shafts 20X, 20Y. Accordingly, the direction in which the ball 8 rotates and the distance which is traversed by the ball 8 can accurately be detected.

In each of the above embodiments, any noise produced by the ball 8 as it rolls on the recording sheet is reduced.

Although certain preferred embodiments have been shown and described, it should be understood that many changes and modifications may be made therein without departing from the scope of the appended claims.

What is claimed is:

1. A pen-type computer input device comprising:
 - a shank having a tip end;
 - a ball rotatably supported on said tip end;
 - a pair of rotatable members rotatable about X and Y axes extending perpendicularly to each other;
 - means for pulling said ball upwards to maintain said rotatable members in rolling contact with said ball independent of pressure on said ball from sources external to said input device; and
 - detecting means for detecting the direction in which said rotatable members rotate and the distance by which said rotatable members move.
2. A pen-type computer input device according to claim 1, further including a pair of fixed shafts fixedly mounted in said tip end of the shank, said rotatable members comprise ball bearing outer races rotatably mounted on said fixed shafts, respectively, said detecting means comprising electrically insulating and conductive regions attached to a side of each of said ball bearing outer races and circumferentially spaced at equal intervals, and electric circuit contacts held in sliding contact with said electrically insulating and conductive regions.
3. A pen-type computer input device according to claim 1, wherein said rotatable members comprise cylindrical bodies, said detecting means comprising a pattern of electrically conductive and insulating regions which are alternately formed circumferentially on each

of said cylindrical bodies, and two brushes held in alternate contact with said electrically conductive and insulating regions.

4. A pen-type computer input device according to claim 3, wherein said pattern of electrically conductive and insulating regions is disposed on each of said cylindrical bodies at one position thereon, said two brushes being displaced from each other in the circumferential direction of said cylindrical bodies.

5. A pen-type computer input device according to claim 1, wherein said rotatable members comprise cylindrical bodies, said detecting means comprising a pattern of light reflecting and absorbing regions which are alternately formed circumferentially on each of said cylindrical bodies, and optical means having a pair of optical members for each of said cylindrical bodies, each said optical member being arranged to apply light onto said pattern and receive reflected light from said pattern.

6. A pen-type computer input device according to claim 5, wherein said pattern of light reflecting and absorbing regions is disposed on each of said cylindrical bodies at two positions thereon, the patterns at the two positions being out of phase with each other, said optical means being associated with the patterns at the two positions.

7. A pen-type computer input device according to claim 1, further including a second ball held in rolling contact with said first-mentioned ball in rotation transmitting relationship to each other, one of said rotatable bodies being held in rolling contact with one of said balls, the other of said rotatable bodies being held in rolling contact with the other ball.

8. A pen-type computer input device according to claim 7, wherein said rotatable members comprise cylindrical bodies, said detecting means comprising a pattern of electrically conductive and insulating regions which are alternately formed circumferentially on each of said cylindrical bodies, and two brushes held in alternate contact with said electrically conductive and insulating regions.

9. A pen-type computer input device according to claim 8, wherein said pattern of electrically conductive and insulating regions is disposed on each of said cylindrical bodies at one position thereon, said two brushes being displaced from each other in the circumferential direction of said cylindrical bodies.

10. A pen-type computer input device according to claim 7, wherein said rotatable members comprise cylindrical bodies, said detecting means comprising a pattern of light reflecting and absorbing regions which are alternately formed circumferentially on each of said cylindrical bodies, and two optical fiber light detectors for alternately applying light and receiving reflected light from said light reflecting and absorbing regions.

11. A pen-type computer input device according to claim 10, wherein said pattern of light reflecting and absorbing regions is disposed on each of said cylindrical bodies at two positions thereon, the patterns at the two positions being out of phase with each other, said optical fiber light detectors being associated with the patterns at the two positions.

12. A pen-type computer input device according to claim 1, wherein said detecting means comprises a pair of fixed shafts fixedly mounted in said tip end of the shank, said fixed shafts being made of an electrically conductive material and having recesses and ridges formed on outer circumferential surfaces thereof at

[CLAIM

This Computer Mouse is characterized by using a magnet, to press the rubber magnetic core ball against the coordinates X and Y shafts.]

We claim:

A computer mouse having the rotatable ball with two contacts inside of it, comprising:
a magnet which attracts the mouse magnetic core ball and rubber outer layer, without
touching the ball, against the coordinates x and y shafts, in a plane parallel with the shafts
x and y plane.

Bibliography: None

Authors: David Darian Muresan and David Muresan

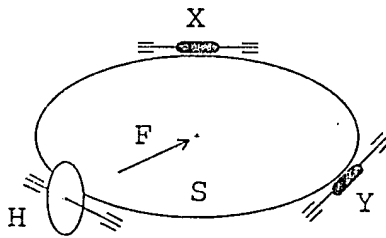


Fig. 1 (Prior Art)

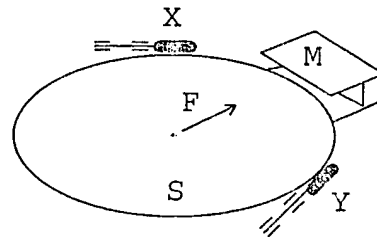


Fig. 2

[Initial drawings]

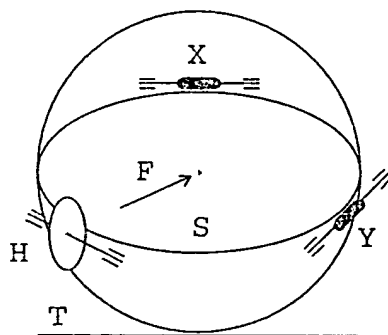


Fig. 1 (Prior Art)

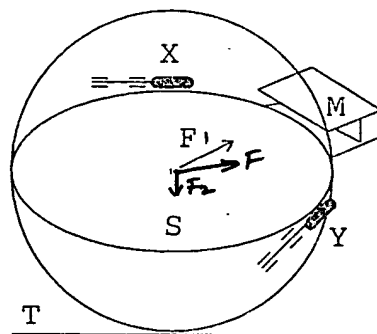
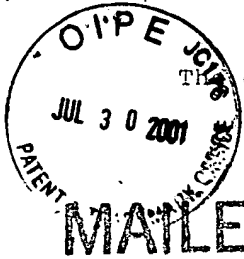


Fig. 2

[New drawings]



The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID D. MURESAN and DAVID MURESAN

Appeal No. 1998-3357
Application No. 08/653,425

ON BRIEF

Before BARRETT, BARRY, and LEVY, Administrative Patent Judges.
BARRY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the rejection of claim 1. We affirm.

BACKGROUND

The invention at issue in this appeal is a mouse for moving a cursor on the display of a computer. In a conventional mouse, a wheel presses a rubber ball against X- and Y-coordinate shafts. As the mouse is moved on a surface, the ball rotates the shafts. Because of friction between the ball and the wheel, the mouse often sticks and the wheel requires cleaning.